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EOSDIS Core System Project

ECS Overall Acceptance Test Plan for Release 5A

May 1999

Raytheon Systems Company
Upper Marlboro, Maryland

ECS Overall Acceptance Test Plan for Release 5A

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Preface

This document presents the Release 5A Acceptance Test Plan (ATP) for the EOSDIS Core System (ECS). This is a formal contract deliverable with an approval code 1. It requires Government review and approval prior to acceptance and use. Changes to this document shall be made by document change notice (DCN) or by complete revision.

Once approved, this document shall be under ECS Project Configuration Control.

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Abstract

The Release 5A ECS System Acceptance Test Plan (ATP) describes the approach System Verification and Acceptance Testing (SVAT) Organization takes to verify ECS functional components and error conditions. The Release 5A ECS System Acceptance Test Plan contains the overall acceptance test plan, processes, procedures and schedules that will be used to verify Release 5A functionality. It describes the ECS formal Release 5A tests scheduled for use at the following facilities: the EROS Data Center (EDC), Goddard Space Flight Center (GSFC), Langley Research Center (LaRC), and the National Snow and Ice Data Center (NSIDC). The ATP specifies the method used to accomplish the Acceptance Testing of Release 5A. It defines the plan used to formally verify that Release 5A meets the specified operational, functional, and interface requirements. Further, the ATP ensures that the integrated system produces an operational environment for ECS operations.

Keywords: AM-1, Landsat-7, scenario, sequence, test case, acceptance, management, plan, verification, Release 5A, ATP, AT.

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1. Introduction

1.1 Identification

This Acceptance Test Plan (ATP), Contract Data Requirement List (CDRL) item 069, whose requirements are specified in Data Item Description (DID) 409/VE1, is a required deliverable under the Earth Observing System Data and Information System (EOSDIS) Core System (ECS) Contract NAS5-60000. The Release 5A ECS System Acceptance Test Plan describes the approach System Verification and Acceptance Testing (SVAT) will take to verify functional components and error conditions. The Release 5A ECS System Acceptance Test Plan contains the overall acceptance test plan, processes, procedures and schedules used to verify Release 5A.

1.2 Scope

The Release 5A system will provide additional capabilities above those provided in the Drop 4PX/4PY system. The new high level functionality provided by 5A includes the following:

- External interfaces for Orbit data from FDS; DAO ingest; Ingest, and archival of Sage III Level 0 data from MOC; Ingest and archive of metadata and browse from Landsat-7 IGSs; Ingest of ASTER DEM 14K data
- Ingest and archival of Sage III Level 0 data from SCF
- High volume ingest from external processing systems
- Cross-DAAC unsubsetted data transfer to support a Cross-DAAC production
- COTS Upgrades for Y2K compliance

In addition to the new capabilities introduced in Release 5A, the system will include modifications to address certain NCRs that have been written against the ECS system. The NCR fixes that will be provided in the Release 5A system are identified in the 5A Science System Release Plan for the ECS Project.

1.3 Purpose

The purpose of this Release 5A ECS System Acceptance Test Plan is to provide an overview of the overall acceptance test plan, process and schedule used to formally verify that the ECS Release 5A meets all functional components and error conditions specified by ESDIS in the Feature Acceptance Tickets (FATs). The FATs group related features and provides Functional Components that must be verified for system acceptance.

1.4 Status and Schedule

The submittal of DID 409/VE1 meets the milestone specified in the Contract Data Requirements List (CDRL) for ECS Overall System Acceptance Test Plan of NASA contract NAS5-60000. The submittal schedule is in accordance with the 5A Science System Release Plan, 334-CD-001-001, and the Master Program Schedule, as shown in Appendix A, the Primavera Test Schedule.

1.5 Organization

The Release 5A ECS System Acceptance Test Plan is organized in five sections and one appendix. The first five sections, Sections 1-5, address the approach that the SVAT takes to test ECS. These sections apply to testing at all sites and include the following detail:

- Section 1. Introduction -- Provides information regarding the identification, scope, purpose, status and schedule, and organization of this document.
- Section 2. Related Documents -- Provides a listing of parent documents, applicable documents, and documents which are used as source information.
- Section 3. Acceptance Test Overview -- Describes Release 5A capabilities and provides an overview of the acceptance, functional, and interface tests.
- Section 4. Test Tools -- Describes the test tools used by SVAT to conduct ECS Release 5A System Acceptance Tests.
- Section 5. Test Preparation and Coordination -- Discusses the process by which formal acceptance testing is managed and executed.
- Appendix A Primavera Schedule Listing – Provides a print out of the Release 5A Acceptance Test schedule current at the date of print of this document.

2. Related Documentation

2.1 Parent Documents

The parent documents are the documents from which the scope and content of this document are derived.

334-CD-001	5A Science System Release Plan for the ECS Project
194-401-VE1	Verification Plan for the ECS Project, Final
420-05-03	Earth Observing System (EOS) Performance Assurance Requirements for EOSDIS Core System (ECS)
423-41-01	Goddard Space Flight Center, EOSDIS Core System (ECS) Statement of Work
423-41-02	Goddard Space Flight Center, Functional and Performance Requirements Specification for the Earth Observing System Data and Information System (EOSDIS) Core System (ECS)
http://satc.gsfc.nasa.gov/ECSVDB/ECSVDBpage.html	ECS Verification Database

2.2 Applicable Documents

The following documents are referenced within this Test Procedures document, or are directly applicable, or contain policies or other directive matters that are binding upon the content of this document.

107-CD-002	Level 1 Master Schedule for the ECS Project
209-CD-002	External Interface Control Document Between EOSDIS Core System (ECS) and ASTER Ground Data System
209-CD-013	External Interface Control Document Between EOSDIS Core System (ECS) and Landsat 7 System
334-CD-001	5A Science System Release Plan for the ECS Project
305-CD-030	Release-B GSFC DAAC Design Specification for the ECS Project
305-CD-031	Release-B LaRC DAAC Design Specification for the ECS Project
305-CD-033	Release-B EDC DAAC Design Specification for the ECS Project
605-CD-002	Release B SDPS/CSMS Operations Scenarios for the ECS Project
607-CD-001	Maintenance and Operations Position Description for the ECS Project

212-WP-002	Game Plan for the ECS Project
QO-1-001	"Quality Office Activities During Formal Testing" ECS Project Instruction
QO-1-017	"ECS Post Test Audit" ECS Project Instruction
TT-1-001	"Test Process " ECS Project Instruction
505-41-11	Goddard Space Flight Center, Interface Requirements Document Between Earth Observing System Data and Information System (EOSDIS) and Version 0 System
505-41-12	Goddard Space Flight Center, Interface Requirements Document Between EOSDIS Core System (ECS) and Science Computing Facilities
505-41-13	Goddard Space Flight Center, Interface Requirements Document Between the Earth Observing System Data and Information System (EOSDIS) and the Landsat 7 System
505-41-18	Goddard Space Flight Center, Interface Requirements Document Between Earth Observing System Data and Information System (EOSDIS) and MITI ASTER GDS Project
505-41-19	Goddard Space Flight Center, Interface Requirements Document Between the EOSDIS Core System (ECS) and the National Oceanic and Atmospheric Administration (NOAA) Affiliated Data Center (ADC)
505-41-21	Goddard Space Flight Center, Interface Requirements Document Between EOSDIS Core System (ECS) and NASA Institutional Support Systems (NISS)
505-41-22	Goddard Space Flight Center, Interface Requirements Document Between the EOSDIS Core System (ECS) and the Stratospheric Aerosol and Gas Experiment (SAGE III) Mission Operations Center (MOC)
505-41-30	Goddard Space Flight Center, Interface Requirements Document Between the EOSDIS Core System (ECS) and the V0 System for Interoperability
505-41-31	Goddard Space Flight Center, Interface Requirements Document Between the EOSDIS Core System (ECS) and NSI
505-41-32	Goddard Space Flight Center, Interface Requirements Document Between Earth Observing System Data and Information System, and the Landsat 7 System
505-41-33	Goddard Space Flight Center, Interface Requirements Document Between the EOSDIS Core System (ECS) and Science Computing Facilities (SCF)

505-41-36	Goddard Space Flight Center, Interface Control Document Between the EOSDIS Core System (ECS) and the National Oceanic and Atmospheric Administration (NOAA) for the ECS Project
505-41-39	Goddard Space Flight Center, Interface Control Document Between the EOSDIS Core System (ECS) and the Langley Research Center (LaRC) Distributed Active Archive Center (DAAC) for the ECS Project
505-41-40	Goddard Space Flight Center, Interface Control Document Between the EOSDIS Core System (ECS) the Goddard Space Flight Center (GSFC) Distributed Active Archive Center (DAAC) for the ECS Project
505-41-47	Goddard Space Flight Center, Interface Control Document Between the EOSDIS Core System (ECS) and the Stratospheric Aerosol and Gas Experiment (SAGE III) Mission Operations Center (MOC)
510-ICD-EDOS/EGS	Earth Observing System (EOS) Data and Operations System (EDOS) Interface Control Document Between the Earth Observing System (EOS) Data and Operations System (EDOS) and the EOS Ground System (EGS) Elements
552-FDD-96/010R0UD0	Goddard Space Flight Center, Earth Observing System (EOS AM-1 Flight Dynamics Division (FDD)/EOSDIS Core System (ECS) Interface Control Document
560-EDOS-0211.0001	Goddard Space Flight Center, EDOS Interface Requirements Document (IRD) Between the Earth Observing System (EOS) Data and Operations System (EDOS), and the EOS Ground System (EGS) Elements

2.3 Information Documents

The following documents, although not referenced herein and/or not directly applicable, amplify or clarify the information presented in this document, but are not binding on the content of this ECS System Acceptance Test Plan document.

224-CD-001	Release B Release Plan for the ECS Project
410-TP-004	Release B Replan Functionality by Phase for the ECS Project
420-TP-019	The Transition Approach to the ECS Release 5A System Release 5A Build Plan
222-WP-004	Release B Replan for the ECS Project

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3. Acceptance Test Overview

3.1 Acceptance Test Overview

3.1.1 System Verification Approach

Features provide the functional capabilities required from the system to support the ECS related missions.

To verify that the ECS system satisfactorily supports the functions specified by the Features, ECS categorized Features into related sets. A 'Ticket' represents each set. Each Ticket encompasses one or more Features. Similar to generating verification criteria for a set of requirements, ECS has developed acceptance criteria for Functional Components and Error Conditions for each Ticket. Figure 3-1 presents the process for verification of Features.

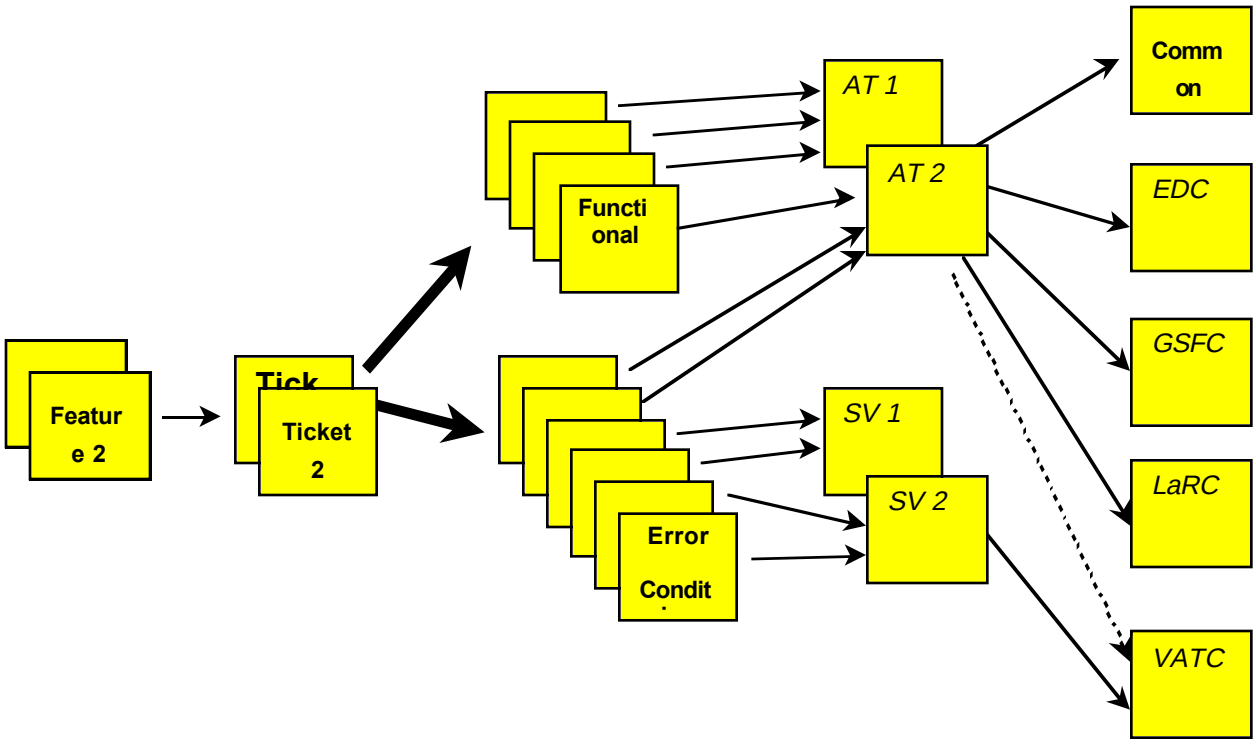


Figure 3-1. Feature Verification Approach

3.1.2 Release Capability Priorities

Release 5A is developed based on a set of features in support of operational readiness and provides the following major functionalities:

- External Interface for orbit data from FDS. Release 5A provides the additional interface to ingest orbit data for AM-1 from the Flight Dynamics System (FDS). This interface is provided to obtain replacement orbit data from FDS in cases where the orbit data received from EDOS is either missing or found to be bad.

- DAO Ingest**.** Included is the capability to ingest products generated by the Data Assimilation Organization (DAO). These products, the "First-Look" analysis products, are made available as ancillary data products for the instrument team data processing.

- Ingest, and archival of the SAGE III Level 0 data from the MOC. The functionality to ingest and archive the SAGE III Level 0 data is also supported as part of 5A. The level 0 is also made available, via standard subscription services, to the SAGE III SCF for higher level processing.

- Ingest and archive of metadata and browse from Landsat 7 IGS. Also included in 5A at EDC is the capability to ingest and archive metadata and browse data for Landsat 7 scenes available from International Ground Stations (IGSs). The IGS scene data itself is not stored in ECS, just the metadata and browse data for the IGS scenes.

- High volume data ingest from external processing systems using the SIPS interface. The additional support in 5A for the SIPS interface provides the capability to receive, ingest and archive data products from external processing systems. This functionality supplements the capability provided in 4PY to deliver lower level products to the external providers through the subscription interface. The ingest capability will use the Polling with Delivery Record (PDR) standard ingest interface with added features to support pointers and linkages to associated input granules and browse, QA and production history granules. In the 5A timeframe, this interface supports data ingest from LaTIS, MODAPS, SAGE III SCF, ASTER DEM, JPL V0 DAAC for ADEOS II and Jason-1 data products.

- Cross-DAAC data (unsubsetted) transfer to support across-DAAC data production. The Cross-DAAC data transfer functionality supports the capability to transfer unsubsetted data products from one DAAC to be automatically ingested into another DAAC or mode within the same DAAC. This functionality involves the Distribution Subsystem placing the requested granules into a specified directory and issuing a Distribution Notification (DN) message to an appropriate mail address configured for the requested DAAC/Mode to receive the data. The Ingest subsystem of the receiving DAAC/Mode is then initiated through notification of the email message. The Ingest Subsystem of the remote DAAC/Mode will then use the DN information to "create" a standard Product Delivery Record (PDR) and then use the standard "Polling with PDR" interface to ingest the associated data granule(s). The transfer may be initiated either through a data product subscription or client interface request for a data product.

- Support for ASTER 1A/1B expedited data. With the delivery of the Cross-DAAC capability discussed above, the complete functionality is available to support the production of ASTER

1A/1B expedited data products. This will require the GSFC DAAC to be configured to transmit the ASTER Level 0 expedited data, via subscription using the Cross-DAAC transfer capability, to EDC. After automatic ingest of the ASTER Level 0 expedited data at EDC, operations at EDC use the ECS standard data production capabilities to request the processing of the data to produce the ASTER 1A/1B expedited data products.

- COTS Upgrades for Y2K compliance.

The missions supported by Release 5A are shown in Table 3-1.

Table 3 -1. Mod 86, Topic 1, Launch Date and Releases GR&A

Identifier	Satellite	Launch Date	SSI&T	Operations Version
T1.1.1-10	Landsat-7	15-Apr-1999	N/A	4 or later
T1.1.1-20	AM-1	15-Jul-1999	4 or later	4 or later
T1.1.1-30	Meteor/SAGE III	31-Jul-1999	N/A	4 or later
T1.1.1-40	FOO/ACRIM	31-Oct-1999	N/A	5A

3.2 Release 5A Features and Capabilities

Release 5A has been structured as an upgrade to Drop 4PX/4PY. The capabilities that are included in the ECS Drop 4PX/4PY system are referenced in the P3 (Primavera) Schedule for the ECS Project. The Release 5A system will provide additional capabilities above those provided in the Drop 4PX/4PY system. These additional capabilities for Release 5A (as currently planned) are identified in Table 3-2. In addition to the new capabilities introduced in Release 5A, the system will include modifications to address certain NCRs that have been written against the ECS system. The NCR fixes that will be provided in the Release 5A system will be identified in the future based upon priority and severity of the NCRs.

3.3 Release 5A Acceptance Test Approach

The acceptance test approach for Release 5A is focused on the verification of launch critical functional components and error conditions identified by the Earth Science Data Information System organization (ESDIS) (requirements verification, while accomplished, is of secondary importance in this drop). Functional components and error conditions are verified by acceptance test procedures that are part of operational scenarios provided by the DAAC's.

The acceptance testing of Release 5A typically falls into one or more of four major groups: System Management, Push, Pull, and/or End-to-End. These groups identify high level ECS functionality from a users and operations viewpoint. Test procedures within each group are used to build DAAC scenarios that emulate the operations and user environment. Test procedures are identified in Table 3-2 and found on the web at http://dmserver.gsfc.nasa.gov/ecstest

Table 3-2. Release 5A Additional Capabilities (1 of 3)

Feature Key	Feature Number	Feature Statement	Feature Drop	Cap Key	Capability Statement	Drop	Ticket	Test Case ID - Test Title
120	1.12	Show the system can support the FDD interface for Orbit Data	5A	171	Orbit data from FDD	5A	JG01	B090320.020$G - Orbit Data Ingest & Archive
150	1.15	Show the system can support the DAO interface	5A	210	DAS data types for 5A	5A	SM08	B120450.020$G -DAS Ancillary Data Ingest & Archive
220	1.22	Show that the system can ingest data following EOSDIS data standards using polling with delivery record	5A	215	Standard ECS Product Ingest (LaTIS, MOPITT, SCF, cross-mode production)	5A	SM15	B090120.020$L - Standard ECS Product Ingest
320	2.10	Show the system can ingest DAO data	5A	210	DAS data types for 5A	5A	SM08	B120450.020$G -DAS Ancillary Data Ingest & Archive
330	2.11	Show the system can ingest ASTER DEM data	5A	290	ASTER DEM (interactive)	5A	SM15	B090120.020$L - Standard ECS Product Ingest
830	3.45	Show the capability for cross-DAAC data transfer in support of data production	5A			5A	SM18	B090320.040$G - DAAC to DAAC Distributed Ingest
900	5.2	Show that an SCF can acquire and view production history data	5A	3393	Production History Acquire <V0 GTWAY>	5A	RM12	B100130.040 - V0 ECS Gateway
1080	5.20	Show the system can support single and multi-site data searches	1	3180	Inventory search for science granules (keywords, spatial, temporal, dependent valids (keywords only) and product-specific attributes)	5A	RM12	B100130.040 - V0 ECS Gateway

Table 3-2. Release 5A Additional Capabilities (2 of 3)

Feature Key	Feature Number	Feature Statement	Feature Drop	Cap Key	Capability Statement	Drop	Ticket	Test Case ID - Test Title
1110	5.23	Show the subscription server can support the encryption of FTP passwords for FTP push acquire actions	5A	4390	Encryption of FTP password	5A	RH07	B100230.020 - Product QA
1250	5.38	Show operator can create, modify and delete schema configuration information, attributes, valids, values, definitions	4P1	1956	Mtool Attribute Editing	5A	RH60	B080860.010 - Maintenance Tool Management
1360	7.1	Show the system can use HP OpenView and Tivoli to perform network monitoring, application monitoring, COTS monitoring and O/S Monitoring, including error detection with threshold checking	4P	3480	Database administration	5A	RM03	B080730.010 - Database Administration
1380	7.3	Show the system can support trouble ticketing	1	3790	Trouble ticket consolidation using Remedy	5A	RM04	B080130.030 - Mode Management and Remedy
				121	ASTER L1A/L1B data types - GPOLYGON	5A	SM07	B090430.010$E - Ingest, Validate, & Archive ASTER L1A & 1B Data
				2220	Truncate results message	4P	RM12	B100130.040 - V0 ECS Gateway

Table 3-2. Release 5A Additional Capabilities (3 of 3)

Feature Key	Feature Number	Feature Statement	Feature Drop	Cap Key	Capability Statement	Drop	Ticket	Test Case ID - Test Title
				2235	Delete from Archive	5A	RH62	B100400.070 - Interim Granules
				2460	Handle variations on search areas and product-specific spatial representations	5A	RM12	TS0890.2 Spatial (3D) Search
				2615	Out of Memory Condition	5A	RM12	B120800.010 - Monitor Science Data Server Memory Usage
				3485	Replace ESSM with DB Vision	5A	RM03	B080730.010 - Database Administration
				3486	SQL Monitor	5A	RM03	B080730.010 - Database Administration
				3881	Recovery from faults identified in failure/recovery walkthrough - Mode Management	5A	RH87	B080130.030 - Mode Management and Remedy

3.3.1 ECS Functional Tests

The complete set of ECS requirements allocated to Release 5A is verified to ensure that the release meets those requirements needed to provide core functionality for the AM-1 and Landsat-7 missions. This includes verifying all test criteria relating to features needed to support the ECS Release objectives for spacecraft operations and control, scheduling, data operations, information management and archive, science processing, networks, and system management at each site. Release 5A functionality is thoroughly verified at the subsystem level in the VATC using system verification tests.

3.3.2 ECS Procedural Tests

Many of the ECS requirements are categorized as procedural-type-requirements. These procedural-type-requirements can generally be grouped into two classifications. The first group requires verification that some action on the part of the DAAC personnel takes place, i.e., operator action requiring a phone call to be made. Such actions are outside the control of the acceptance test process and are not tested.

The second class of procedural-type-requirements requires the verification that certain ECS produced procedural or operations manuals are available at the site. Their availability are verified during the Physical Configuration Audit, and during each site's actual installation. The acceptance test process of the ECS system is not involved in the verification of such requirements. As such, the requirements may be listed with certain applicable scenario groups and are marked to indicate that the procedures are verified through other activities i.e., the Physical Configuration Audit (PCA), Version Description Document (VDD), or site installation and checkout activities.

3.3.3 Reliability, Maintainability and Availability (RMA) Tests

Many of the RMA requirements are verified outside of the Acceptance Test phase through inspection or analysis. The analysis of these requirements are documented in the Contract Data Requirements List (CDRL) and described by the Data Item Descriptions (DIDs) as indicated below:

Availability Models/Predictions (515)

Reliability Predictions (516)

Maintainability Prediction (518)

The RMA requirements are listed with the applicable scenario groups and are marked to indicate that the procedures were verified through other activities prior to the actual Acceptance Test Procedure (ATP) execution.

3.3.4 Other Requirements

A few of the ECS requirements require that some, or all, of the EOSDIS components be available during acceptance tests, that analysis be conducted in view of all EOSDIS components, or that analysis occurs over time. These requirements are verified outside of the Acceptance Test time frame and require the coordination of other responsible EOSDIS personnel.

3.3.5 Y2K Tests

Tests to verify Year 2000 compliance of the ECS are performed against the Release 5A baseline. Testing is performed at two levels: test demonstrations at the functional or subsystem level and at the overall system level. Functional testing techniques ensure the system and end user requirements and specifications are met at the subsystem level and focus on results of processing instead of how processing is implemented. The System level tests ensure that ECS performs in accordance to requirements from a user standpoint at the overall ECS system level. Some of these test cases have been developed from existing System Verification (SV) and Acceptance Test (AT) test cases and some new test cases have been developed and executed. For more information on ECS Y2K testing see *Year 2000 SDPS Test Plan for the ECS Project 162-TP-001-001*.

Functional and system Y2K testing are conducted on the existing Verification and Acceptance Test Center (VATC) string, located at the Landover facility in room 1028, 1030, and 1100. This string is fully operational and emulates all the ECS general and site-unique hardware configurations found at the DAACs and the SMC.

Primavera Project Planner (P3) was used to schedule the various Y2K activities. P3 will enable the test team to identify activity progress and make corrections if needed to stay on schedule as the process is monitored daily.

4. Test Tools

4.1 Test Tools

This section identifies and describes the test tools (COTS and custom coded software) used in the execution of the Release 5A ECS Acceptance Tests and the generation of test data sets. The tools for requirements traceability, computer aided software test, configuration management, network status and monitoring, and external interface simulators are discussed below. Table 4-1 summarizes the test tool suite available for Release 5A acceptance tests.

Table 4-1. Release 5A Test Tool Descriptions (1 of 2)

Category	Tool Type	Tool	Tool Description
COTS	Requirements, Capabilities, Features and Test Case Cross Reference Tool	ACCESS System Verification n Data Base	The ACCESS System Verification Database tool provides an audit trail of requirements, capabilities, features and test cases to which they are linked. The tool also provides the verification status of all of the above.
COTS	Scheduling and Status Reporting	Primavera	The Primavera is used to establish the basic day-by-day testing schedule and the status of acceptance test progress.
COTS	Configuration Management Tool	Clear Case	Clear Case uses Version Object Base (VOB) to store the software versions. A VOB is a virtual directory tree of sources and other objects that is mounted like a disk partition.
COTS	Nonconformance Reporting and Corrective Action Tool	DDTS	DDTS is a UNIX change management and bug tracking system that tracks and manages changes throughout the life cycle of a hardware or software product from initial requirements planning to obsolescence in the field. DDTS works in conjunction with ClearCase.
COTS	Network Management Framework	HP Open View	HP OpenView is used to monitor any device that supports the Simple Network Management Protocol (SNMP). This tool will aid us in determining the status of the network and the devices on the network.
COTS	Network Analyzer/Monitor	Network Analyzer Sniffer	The Sniffer Network Analyzer assists in performance testing and monitors and generates traffic on Ethernet and FDDI networks.
COTS	Network Performance Tool	Netperf	Netperf is a benchmark tool that measures various aspects of network performance; primarily focusing on bulk data transfer and request and request/response performance using either the TCP or UDP and the Berkeley Sockets interface.

Table 4-1. Release 5A Test Tool Descriptions (2 of 2)

Category	Tool Type	Tool	Tool Description
COTS	Capture and Playback Automated Test Tool	XRunner	XRunner is an automated software testing system for Xwindow applications. Xrunner automates the full range of software testing needs. Some of the gained functionality includes: output synchronization, text recognition, and a high-level testing mode that operates directly on GUI objects.
COTS	Automated Client/Server Testing System	Load Runner	LoadRunner is an automated testing system for client/server applications on UNIX/X platforms. By running multiple users in parallel off the server, LoadRunner enables the automation of load testing, performance testing, and system tuning.
COTS (ETS)	Low Rate Simulator High Rate Simulator	LRS HRS	LRS/HRS provides the capabilities to simulate EOS AM-1 spacecraft and instrument low rate telemetry data and high rate science data for the EOC and DAACs. LRS/HRS also simulates the EDOS interface with the ECS.
COTS (ETS)	Production Data Set Generation System	SCTGEN	SCTGEN simulates L0 processing systems like EDOS by generating Production Data Sets (PDS).
COTS (SDPF Toolkit)	Level 0 Simulator	L0sim	Generates L0 products in packet format with associated headers.
COTS (HDF Command Library)	HDF File View Tool	vshow	Allows a user to view an HDF file. The output of vshow can be redirected to a file and be printed.
COTS (ECS Development)	HDF File View Tool	EOSview	Allows a user to view an HDF file in selectable parts including metadata portions.
COTS	HDF File View Tool	HDF Browser	Another HDF view tool.
Customized	Metadata Editor & File Generator	mdedit	Allows a user to modify metadata portion of and HDF file and generate any number of additional HDF files.
Customized	Metadata Simulator	(Perl script) and Tcl/Tk	A GUI based tool that allows a user to populate the science data server with realistic metadata.
Customized	Level 0 (packet) View Tool	L0view	Allows a user to look at packet headers.
Customized	file dump utility binary file editor	dmp hex	Allows a user to display any file in hexadecimal and ASCII. Allows a user to display and edit any binary file.
COTS (UNIX Commands)	UNIX Command Useful to Testers	od -x od -c diff & sdiff	Allows a user to see the contents of a file in hexadecimal (binary). Allows a user to see the contents of a file in ASCII (text). Allows a user to compare the contents of two files.
COTS	Contains CIL/CAL	XRP	BLM used for PCA and controls version baselines for test articles.

4.2 Test Planning and Statusing Tools

There are two systems in use on ECS that facilitate the acceptance test planning and statusing process. The use of these tools focus on identifying, cross-referencing, and tracking: features, capabilities, requirements, and test cases. These tools are the ACCESS System Verification Database (ECSVDB) tool and the Primavera Scheduling tool.

4.2.1 ACCESS ECS System Verification Database (ECSVDB)

The ACCESS ECS System Verification Database (ECSVDB) tool provides an audit trail for ECS requirements, capabilities, features and test cases. All acceptance test procedures are linked to functional components and error conditions as well as requirements. ECSVDB contains the official version of all ECS Release 5A functional components and error conditions and their mapping to test cases. It also contains the status of the ongoing verification process. As test procedures are executed, their impact on the verification status of related requirements and features, are entered into the individual test folders and two test logs – the Release 5A Requirements Log and the Release 5A Features Log. The contents of these logs are used to periodically update the features and requirements verification status in the ECSVDB. A variety of ECSVDB reports can be obtained through contact with the ECSVDB Web site http://ecsv.gsfc.nasa.gov/. Release 5A acceptance testing will be conducted with primary emphasis on the verification of launch-critical functional components and error conditions whose relevance to test procedures are found in the ECSVDB data base.

4.2.2 Primavera Scheduling Tool

Primavera is the basic scheduling resource use by ECS in scheduling and statusing work progress. All test procedure preparation and conduct is scheduled using Primavera. As testing proceeds, Primavera is up-dated to record progress. Primavera also links capabilities being implemented by the development activity to the test cases that will verify the capability's existence and effectiveness. This linkage also shows a slip in the test schedule when a corresponding slip in implementing the capability occurs.

4.3 Computer Aided Software Test and Performance Tools

The Mercury XRunner and LoadRunner tools are computer aided software test and performance test tools used to assist in the automation of testing. XRunner is designed to automate the test process by capturing, in a script file, keyboard, mouse input and system under test (SUT) responses, and then playing back those inputs and comparing the results to those stored in an expected results directory. LoadRunner is used to simulate a large number of actual users, in order to measure the response time of a server in a client/server application. Both tools offer sophisticated programming capabilities through a C based language called Test Script Language (TSL) that can be used to drive the system under test much more extensively than would be possible with manual testing. It also offers the virtue of repeating a test sequence with fidelity. The XRunner and LoadRunner tools also provide very reliable playback of user input. Specific usage of XRunner and LoadRunner in ECS acceptance tests is discussed below.

4.3.1 XRunner Usage

The primary use of the XRunner tool is the automation of functional tests that involve heavy use of graphical user interfaces. Examples of such user interfaces are the Release 5A DAAC or SMC operator screens.

4.3.2 LoadRunner Usage

LoadRunner is utilized for all response time testing that involves the Release 5A desktop GUI and during End-to-End tests that involve large numbers of test and operations personnel at multiple sites.

4.3.3 Test Execution Reports

Upon completion of a test script execution, both XRunner and LoadRunner automatically generate test execution reports. LoadRunner generates performance graphs for analysis.

4.4 Configuration Management Tools

The ECS Configuration Management Organization (CMO) is responsible for the management and control of the Software Development Library (SDL) and the baseline configuration management of hardware and software. The Nonconformance Reporting and Corrective Action (NRCA) system is administered by System Engineering for the Nonconformance Reporting (NCR) Control Board. Two software tools are used to support these efforts: ClearCase and Distributed Defect Tracking System (DDTS).

4.4.1 ClearCase

The CMO utilizes ClearCase to manage and control the Software Development Library (SDL) which is the central repository for ECS software including test verification items. ClearCase, an automated software tracking tool, manages multiple versions of evolving software components; tracks which versions were used in software builds; performs builds of individual programs or entire releases according to user-defined version specifications; and enforces site-specific development policies. ClearCase scripts are provided by CMO to be used throughout the software development life cycle in order to standardize and automate the tracking of the information in the SDL. The project instruction PI CM-1-019 Software Development Library describes the SDL, the role of ClearCase in the SDL, and the associated ClearCase scripts.

The following test items are stored and baselined by the CMO, via the Software Turnover Process, as they are finalized.

- Verification documents, including test plans, procedures, scripts, and reports
- Test data sets, software and hardware configuration, including test tools
- Unit-tested components, data sets, Segment hardware configuration, and COTS software, as described in COTS Process Model, PI SD-1-013
- Verified Segment/element threads and builds
- Verified system builds

- Integration system build for a release
- Evaluation of test results

The items are retrieved from the SDL, via ClearCase, when required to perform various verification activities at the sites.

The ECS policies and procedures for baselining test items and retrieving test items from CMO is defined in PI CM-1-025, Software Development Handbook.

Since Acceptance Testing of the ECS is conducted within a baselined configured environment, ClearCase is installed at each test site; and CMO electronically deploys the binary files (executable) of ECS software at each test site. In order to maintain the integrity of the test script and test data, CMO deploys SVAT's test scripts and test data, in the same manner they deploy ECS binary files. This allows the Acceptance Tester, at each test site, to maintain a baseline of changes to the test script and/or test data for the purpose of local configuration or providing a work around to problems.

4.4.2 Distributed Defect Tracking System (DDTS)

The DDTS is a software tool used to support the NRCA system. The DDTS records nonconformances and reflects the progress of Nonconformance Reports (NCRs) through resolution and captures necessary information to document that progress. Through the production of management reports, DDTS provides management visibility and metrics to insure that NCRs are being worked in a timely and effective manner. The policies and procedures governing the usage of DDTS on ECS are defined in the Non-Conformance Tracking Project Instruction (PI), SD-1-014.

The NRCA system is the process for identifying, investigating, and resolving problems with the ECS during development, integration, installation, and acceptance test. To facilitate disposition and resolution of problems, the NRCA system and its processes emphasize tracking of responsibility, effective communication and delegation of authority.

4.4.3 Baseline Manger (XRP)

The Baseline Manager is used to record and report the design and as-built operational baselines for ECS. It contains the configuration record for baselined items or products. It tracks products by unique identifier, description, location, and model/version, and it identifies the configured articles that are the components of an approved baseline or assembly. It also provides traceability of baselines and products to previous versions and configurations.

The Baseline Manager tool contains the official Configuration Items List and Configuration Articles List used as a basis for the Functional

Configuration Audit and Physical Configuration Audit approved by the ECS CSR and RRR for each release.

4.5 Network Status and Monitoring

The three network tools utilized in acceptance tests are the HP OpenView, Sniffer Network Analyzer, and Netperf. Each are described below.

4.5.1 HP OpenView

The HP OpenView is a network tool that monitors and controls the entire network environment at each ECS site. As a diagnostic tool, it has the capability to isolate faults quickly. The tool, which resides on the Local System Management (LSM) at each ECS test site, allows the user to display a map of the network environment at that local site for the LSM and the maps of all sites at the SMC. These maps are real-time interactive graphical representations which allow the user to detect network problems as they occur without having to update or refresh the display screen, and to diagnose network connectivity. The tool allows the user to create submaps of the map that can be as small as a software component on the system. The Acceptance Test Team (ATT) utilizes this tool to introduce non-standard configurations and/or network faults to the system.

4.5.2 Network Analyzer/Sniffer

The Network Analyzer/Sniffer is a fault and performance management tool that analyzes network activity and identifies problems on multitopology and multiprotocol networks.

4.5.3 Netperf

Netperf is a benchmark tool that measures various aspects of network performance. Its primary focus is on bulk data transfer and request/response performance using either the TCP or UDP and the Berkeley Sockets interface.

4.5.4 ECS Assistant

ECS Assistant is an installation package that enables the ECS custom code to be installed.

4.6 External Interface Simulators

External interface simulators are used during acceptance testing when the real interfacing system is not available. For Release 5A, the simulators used for acceptance testing are described below.

4.6.1 EOSDIS Test System (ETS)

The ETS is primarily designed to support ECS Release 5A and EOS Ground System (EGS) testing. For Release 5A, pending availability, the Low Rate System and the Multimode Portable Simulator is used for EOC testing. In this configuration, ETS provides simulated telemetry data.

4.7 Data Editor, Generators, and View Tools

During acceptance testing, a variety of data editors, generators and viewing tools are used. Each of these tools is described below.

4.7.1 SCTGEN

SCTGEN is a software package with a graphical user interface that simulates CCSDS and non-CCSDS telemetry for both forward and return link data streams. When used as a test tool for EOSDIS it simulates EOS Data and Operations System (EDOS)-generated data products, such as EDOS Data Units (EDU), Expedited Data Sets (EDS), and Production Data Sets (PDS). SCTGEN provides comprehensive error insertion capabilities. SCTGEN generates test data off-line, and does not present a schedule conflict with operational systems. SCTGEN is a portable software system and requires little in terms of resources. The Simulated Consultative Committee for Space Data Systems (CCSDS) Telemetry Generator (SCTGEN) generates telemetry data files and related sets in various formats according to ECS specifications. In conjunction with other ETS components, SCTGEN supports EOS ground system integration, testing, verification, and validation.

4.7.2 Metadata Editor (mdedit)

The Metadata (mdedit) software test tool allows editing of the metadata portion of HDF files and the creation of any number of new files based upon the begin and end times specified. The mdedit tool uses one file as input and produces any number of output files all the same length and basic structure of the input file with the metadata values possibly modified. The original input file is unchanged, and a log file that encapsulates all the important information of the session is recorded.

4.7.3 Production Data Set (PDS_edit)

The Production Data Set (PDS_edit) software test tool allows the modification of the packet start and stop time (spacecraft portions of the construction record and packet time stamp in the secondary header of the packet file of the Production Data Set). The PDS_edit uses two files as input and then produces a new PDS construction record and packet file. The original input files are unchanged, and the new PDS files uses the current time as the set creation time imbedded in the file name and PDS_EDS_ID of the construction record.

4.7.4 L0sim

The L0sim allows the creation of various level 0 data products, such as CCSDS packet files in various formats. TRMM and EDOS AM-1 are among the various formats supported. The L0sim runs from the UNIX command prompt. It prompts for input, such as file start and stop date, time interval between packets, APID, and the name of the file containing simulated packet data.

4.8 HDF File Display/View tools

HDF file display and viewing tools are explained below.

4.8.1 EOSview

EOSview is a file viewing tool which examines and verifies the HDF and HDF-EOS data files. EOSview allows the viewing of the HDF files and individual objects and displaying of all metadata fields and data objects. Attributes and annotations can also be viewed.

4.8.2 HDF Browser

The HDF Browser utility enables the examination of HDF file's hierarchy and components. When an HDF file is opened, the HDF Browser displays the hierarchical structure and organization of the file's contents. The capability for viewing each object in the file is also provided.

4.8.3 vshow

The vshow tool is a command-line utility that is executed from the UNIX shell prompt. Vshow lists and displays information about Vdata objects in a HDF file. In addition, the metadata portion of the HDF file is displayed.

4.8.4 Basic File Display/View/Edit Tools

Basic file display capabilities include UNIX commands such as dmp, hexpert, od-x, od-c, diff and sdiff. These commands can be used for file displays, viewing and editing.

4.9 Test Data

A variety of test data is required to exercise the Release 5A system at each site. This test data will be used in conjunction with the simulators described above to stimulate the system. Real test data provided by the instrument teams is used whenever possible. In situations where real data is not available, simulated data or similar heritage data is used for testing. The test data is validated and placed under configuration control prior to test execution.

Further information concerning the availability of data sets can be found on the Test Data Home Page: http://dmserver.gsfc.nasa.gov/ecstest/.

5. Test Preparation and Execution

This section describes the process by which formal acceptance testing is managed and conducted. The responsibilities of the test manager and test engineers are also described.

5.1 Acceptance Test Preparation

Acceptance test planning is formally presented in the Verification Plan (DID 401/VE1) and the Acceptance Testing Management Plan (DID 415/VE1). The Release 5A Acceptance Plan expands on the test planning process to include a brief overview relating to all sites and specific test information relating to the individual sites that will be supporting AM-1 and Landsat-7 with Release 5A. The Configuration Management activities related to transferring software code is described in the ECS Configuration Management Plan (DID 102/MG1) and the Configuration Management Procedures (DID 103/MG3).

An important part of the acceptance planning process involves development of Release 5A tests that are designed to verify system functional components and error conditions that have been allocated to this drop. This has been done through extensive use of the ACCESS ECS Verification Database (ECSVDB) maintained by ESDIS. This database was used as a mainstay in developing and linking requirements to test cases. A complete Requirement to Test Case spreadsheet may be accessed by visiting the ECSVDB home page (http://ecsv.gsfc.nasa.gov/). In order to track the testing of functional components and error conditions, Feature Acceptance Tickets (FATs) were created by the ECS Architects Office (AO). The FATs group-related features and provide Functional Components that serve as details on how to verify the associated features. Test cases that address the functional components listed on the FATs were then created or adapted from existing test cases. The test cases linked to functional components and error conditions via the FATs are incorporated into launch critical operational scenarios identified by the DAACs and scheduled for execution at the appropriate sites using the Primavera P3 scheduling tool. As test procedures are executed according to the Primavera schedule, their test status is collected and provided as input to the ECSVDB. The ECSVDB is then used to provide reports via the ECS Verification Web Site that displays an up-to-date status of test progress. See Table 5-1 for an example of the verification log.

Table 5-1. Verification Log

Test Key	Test Case ID	Test Title	Sched. Drop	Ticket ID	Criteria Key	Criteria Statement	Type	Test Engineer	Test Comp Status	Start Date	Finish Date	TC/Crit Status	NCR Number	NASA Witness (designee)	Comments	Site Execute
13	B080120.010$L	8.1.2.1 Site Start-up Confidence and Site Restart Including Introduction of Previous Results	4PX	RM5	75	Demonstrate fault handling and recovery capabilities j) Failure / restart of MSS accountability servers	FC	Khatri	F	24-Oct	24-Oct	V		GJ	Verified at EDC on 10/24/98 using B080120.010$E.	EDC
13	B080120.010$L	8.1.2.1 Site Start-up Confidence and Site Restart Including Introduction of Previous Results	4PX	RM3	797	1. Start the ECS servers in the test environment using HP OpenView. Verify that the HP OpenView screen displays the result of each start-up correctly. Include all three modes to demonstrate that HP Open View correctly handles them.	FC	Khatri	F	24-Oct	24-Oct	V		GJ	Verified at EDC on 10/24/98 using B080120.010$E.	EDC
13	B080120.010$L	8.1.2.1 Site Start-up Confidence and Site Restart Including Introduction of Previous Results	4PX	RM3	49	2. From HP OpenView, shut down all ECS servers in the test environment, and then restart them from HP OpenView. Verify that HP OpenView displays the results of each operation correctly. Perform independent start-up and start-down of; see FAT for details.	FC	Khatri	F	24-Oct	24-Oct	NV	N18917 (Sev 2) 15874 (Sev 2) 16073 (Sev 2) 17103 (Sev 2)	GJ	Status of Not Verified at EDC on 10/24/98 using B080120.010$E.	EDC
13	B080120.010$L	8.1.2.1 Site Start-up Confidence and Site Restart Including Introduction of Previous Results	4PX	RM3	50	3. Induce errors in the selected ECS servers causing them to fail (e.g., hard shut-down). Verify that the server fault is displayed on HP OpenView. Restart the servers from HP OpenView. Verify that the server status is; see FAT for details.	FC	Khatri	F	24-Oct	24-Oct	NV	N18903 (Sev 3)	GJ	Status of Not Verified at EDC on 10/24/98 using B080120.010$E.	EDC
13	B080120.010$L	8.1.2.1 Site Start-up Confidence and Site Restart Including Introduction of Previous Results	4PX	RM3	1035	4. Simulate a platform maintenance event While performing workload for a concurrent test, shut down the ECS servers on the platform used by that test using HP OpenView. Shut down any other services on that platform; see FAT for details.	FC	Khatri	F	24-Oct	24-Oct	V		GJ	Verified at EDC on 10/24/98 using B080120.010$E.	EDC
13	B080120.010$L	8.1.2.1 Site Start-up Confidence and Site Restart Including Introduction of Previous Results	4PX	RM3	55	2. Demonstrate failure and recovery of the MSS host.	EC	Khatri	F	24-Nov	24-Nov	V			Verified in the VATC on 11/24/98 using B080120.010$G	VATC
13	B080120.010$L	8.1.2.1 Site Start-up Confidence and Site Restart Including Introduction of Previous Results	4PX	RM3	798	3. Demonstrate failure and rebooting of a monitored host.	EC	Khatri	F	24-Nov	24-Nov	V			Verified in the VATC on 11/24/98 using B080120.010$G	VATC

VW = Verified with Workaround (Sev 3 NCR(s), No Sev 1 or 2 NCRs)
NV = Not Verified (Sev 1 or 2 NCR(s))
NT = Not Tested
DE = Database Error
V = Verified

5.2 Test Execution

The software release is installed in a dedicated mode(s) in the VATC for formal testing. Formal tests are run to verify the set of Release 5A system capabilities reflected in Table 3.2. All applicable capabilities are demonstrated in the VATC as part of formally witnessed tests. External interface testing is conducted to the extent possible in each test environment under conditions that simulate operational activities.

Test execution in the VATC concludes with a CSR. The CSR documents the results of the VATC test program including verification status, liens associated with the release and a lien work-off plan if needed. Following the CSR with the release to the sites in the field, the responsibility and control for the system is turned over to the M&O organization. The M&O staff conduct the CCB for changes and manage NCR fixes and modifications.

Before deployment of the release, ECS ensures close coordination with each DAAC to plan the on-site delivery. This includes on-site ECS/Landover support for test execution and post-test analyses that may be required.

Following CSR, the software is shipped to the DAACs. The DAAC staff performs site Integration, Checkout and Test (IC&T) in a test mode (normally, TS2) under the direction of the ECS/Landover staff.

5.3 ECS Test Process

The ECS Test Process is an interconnected activity flow that incorporates Government and Contractor organizations, different venues and defined interdependencies. The process is described in the following paragraphs.

The requirements for test verification are defined in Feature Acceptance Tickets (FATs) that are generated by the ECS System Engineering (SE) organization. These Tickets capture all of the features delineated by ECS and approved by NASA to cover the required capabilities. Each Ticket further delineates functional components and error conditions that are tied to the features specified in the Ticket. Each of the criteria elements has a unique Criteria Key to identify it. These functional components and error conditions comprise the criteria requirements used for acceptance testing, and their verification is the basis of acceptance of the system.

The ECS SE staff maps the Feature criteria to specific Test Cases. This initiates the Test Procedure development by the ECS Test organization. In addition, the delineated test cases are used as line entries to develop the Test Schedule in Primavera (P3). The list of test cases is also an input for NASA (ESDIS) to analyze the tickets for interpretation and updates, and to populate the Verification Database (VDB). During test procedure development, it may be necessary to revisit and coordinate with the SE organization and ESDIS to update the ticket and re-map portions of the criteria to other test cases. Upon completion of the draft test procedures, they are disseminated for review and final approval by ESDIS.

The in-plant test dry runs begin with the draft procedures and continue until successful test conduct is executed with the final procedures. The final formal acceptance tests are conducted in the Verification and Acceptance Test Center (VATC) at Landover. Formal tests are run to verify a predefined set of system capabilities reflected in the functionality components. All requirements demonstrated in the VATC are addressed as part of these formally witnessed tests. The formal Acceptance Test program is accomplished in the VATC and on-site activity consists of installation and checkout of the released system.

Following test conduct, a post test analysis accomplished by the test team with ESDIS to review the results, to agree on the verification status to be assigned to all functional components and error conditions, and to determine what measures must be taken to resolve deviations, anomalies, problems and errors.

The overall results of each test are recorded in the Site Verification Log (VLog) which is the basis for ECS test status tracking and consistency checks, and are also used by ESDIS for analysis, interpretation and VDB population and updates. As testing continues, all of the detailed results of each test case are maintained in a test folder. The test procedure, with any redlines noted during the test, test artifacts collected during the test execution, test witness sign off sheets, NCR's written against the test, and any other general comments on the test are placed in the Test Folder. The Test Folders are then subject to audits by the ECS Quality Office.

All of the unexpected results and discrepancies are documented in Non-Conformance Reports (NCRs) and are entered into the Distributed Defect Tracking System (DDTS). Also included are operational NCRs. The resolution of NCRs is handled by the M&O organization. Out of scope enhancements are submitted to the M&O CCB in the form of Configuration Change Requests (CCRs). At this time it may be determined that it is necessary to initiate Ticket updates and re-mapping of criteria for specific test cases. All new NCRs placed in DDTS are assigned a severity by the individual who enters the NCR. The severity ranges from Severity 1, "System cannot perform critical function (i.e.: a showstopper), to a Severity 5, "Minor enhancement or minor request". The severity is reviewed and modified if necessary by members of the NCR board.

Based on the severity and criticality of the NCRs, they also undergo prioritization by ECS and ESDIS. This establishes the order in which the top ranking NCRs will be resolved. The NASA Science System Development Office (SSDO) also makes inputs in this determination. Another factor determining the NCR prioritization is the Feature Group (FG) priority associated with the related NCR. Depending on the priority of the NCR, the ECS Development Organization schedules and incorporates software fixes into incremental patches and these are tested in the VATC.

A final FCA is conducted by NASA to determine the overall functional completeness of the system. This is accomplished by a review of the previous Incremental FCA findings, the NCR information contained in DDTS, and detailed analysis of Test Folder data, along with the up-to-date latest criteria status information from the VDB.

The test process culminates in the conduct of the Release Readiness Review (RRR). At this milestone, ECS presents the accumulated results, status, and findings of the acceptance test program and the FCA audit to enable the NASA customer to determine if the ECS system is ready for operational use in the field.

5.4 Release 5A Test Procedures

The test procedures listed below will be executed in the VATC to verify the capabilities that have been incorporated in Release 5A.

Test Number	Test Procedure Title
B080130.030	Mode Mgmt & Remedy
B080730.010	Database Administration
B080860.010	Maintenance Tool Mgmt
B090120.010	Level 0 SAGE at LaRC
B090120.020	Standard ECS Product Ingest
B090320.020	Orbit Data Ingest & Archive
B090320.040	DAAC to DAAC Distrib Ing
B090340.010	Attitude Data Process & Archive
B090420.010	HDF-EOS Auto Restart
B090420.020	L7 IGS Metadata Ingest & Archive
B090430.010	Ingest & Val L1A/B @ EDC
B100130.040	V0 ECS Gateway
B100230.020	Product QA
B100400.070	Interim Granules
B120450.020	DAS Ancil Data Ingest & Arch
B120800.010	Monitor SDSRV Memory Usage
TS0605	DAS Data Types
TS0615.1	LATIS Data
TS0635.1	FDD Data INS & ARC
TS0660.2	L-7 IGS Metadata INS & Arch
TS0680.6	SAGE III Data
TS0840.1	Add/View ESDT
TS0860.7	Interim Data Processing
TS0890.2	Spatial (3D) Search

A full description of each of the above tests is contained in the Acceptance Test Procedures (DID 411) document, which is an on-going living document that is posted to the Web and frequently updated (http://dmserver.gsfc.nasa.gov/relb_it).

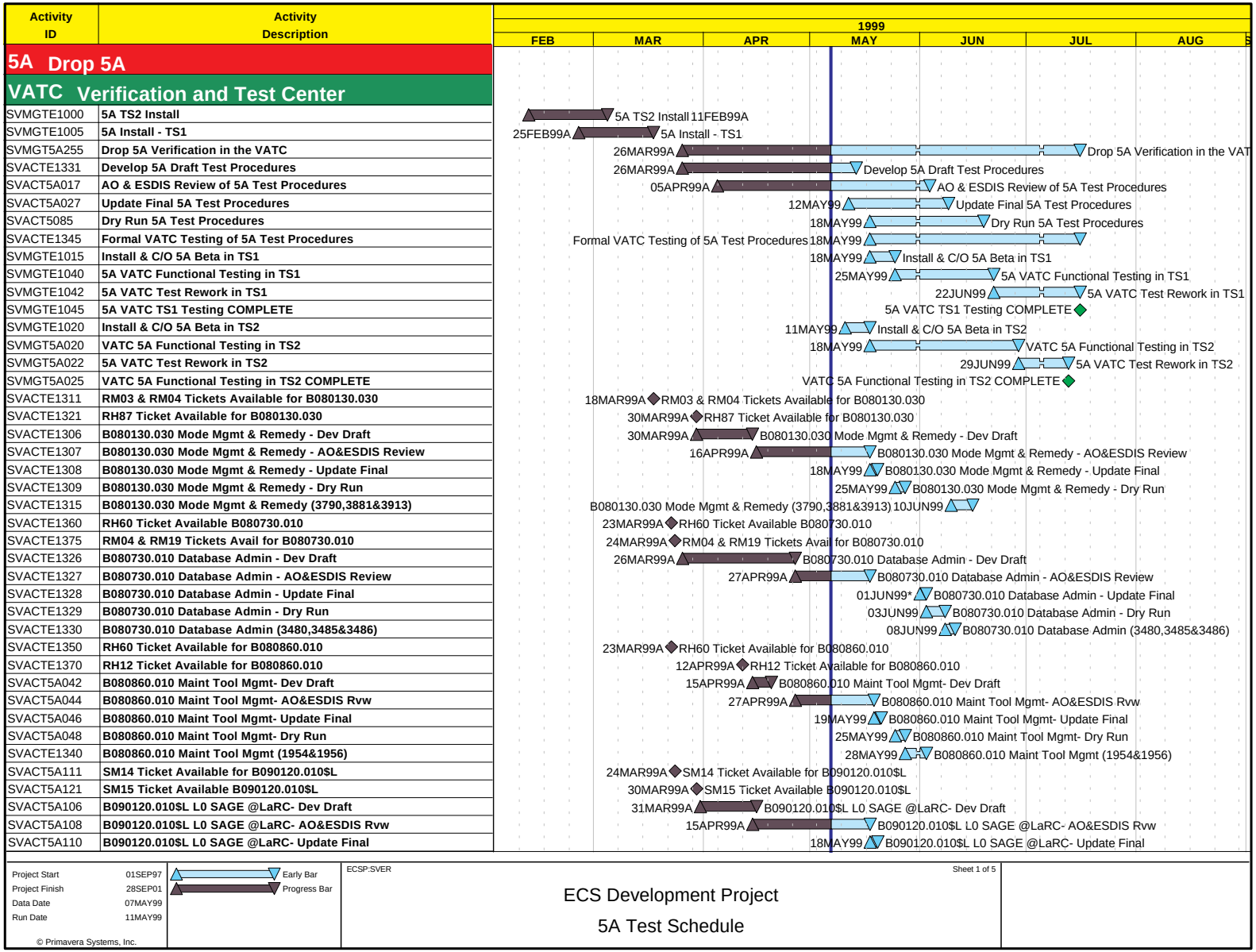
5.5 Release 5A Test Schedule

Primavera is the basic scheduling resource used by ECS in scheduling all test activities. All test activities are scheduled using Primavera. A Primavera schedule listing includes the Test case number, test case title, test site, and planned date for each test to be executed for Release

5A Acceptance Testing. Appendix A of this document contains the Release 5A Acceptance Test Schedule listing from Primavera as of the date of print of this document. The Primavera schedule tool should be consulted to obtain up-to-date schedule information.

A. Primavera Schedule Listing

The Primavera (P3) Schedule for the Release 5A Test Program is attached


Activity ID
Activity Description
1999
FEB
MAR
APR
MAY
JUN
JUL
AUG
5A Drop 5A
VATC Verification and Test Center
SVMGTE1000 5A TS2 Install
SVMGTE1005 5A Install - TS1
SVMGT5A255 Drop 5A Verification in the VATC
SVACTE1331 Develop 5A Draft Test Procedures
SVACT5A017 AO & ESDIS Review of 5A Test Procedures
SVACT5A027 Update Final 5A Test Procedures
SVACT5085 Dry Run 5A Test Procedures
SVACTE1345 Formal VATC Testing of 5A Test Procedures
SVMGTE1015 Install & C/O 5A Beta in TS1
SVMGTE1040 5A VATC Functional Testing in TS1
SVMGTE1042 5A VATC Test Rework in TS1
SVMGTE1045 5A VATC TS1 Testing COMPLETE
SVMGTE1020 Install & C/O 5A Beta in TS2
SVMGT5A020 VATC 5A Functional Testing in TS2
SVMGT5A022 5A VATC Test Rework in TS2
SVMGT5A025 VATC 5A Functional Testing in TS2 COMPLETE
SVACTE1311 RM03 & RM04 Tickets Available for B080130.030
SVACTE1321 RH87 Ticket Available for B080130.030
SVACTE1306 B080130.030 Mode Mgmt & Remedy - Dev Draft
SVACTE1307 B080130.030 Mode Mgmt & Remedy - AO&ESDIS Review
SVACTE1308 B080130.030 Mode Mgmt & Remedy - Update Final
SVACTE1309 B080130.030 Mode Mgmt & Remedy - Dry Run
SVACTE1315 B080130.030 Mode Mgmt & Remedy (3790,3881&3913)
SVACTE1360 RH60 Ticket Available B080730.010
SVACTE1375 RM04 & RM19 Tickets Avail for B080730.010
SVACTE1326 B080730.010 Database Admin - Dev Draft
SVACTE1327 B080730.010 Database Admin - AO&ESDIS Review
SVACTE1328 B080730.010 Database Admin - Update Final
SVACTE1329 B080730.010 Database Admin - Dry Run
SVACTE1330 B080730.010 Database Admin (3480,3485&3486)
SVACTE1350 RH60 Ticket Available for B080860.010
SVACTE1370 RH12 Ticket Available for B080860.010
SVACT5A042 B080860.010 Maint Tool Mgmt- Dev Draft
SVACT5A044 B080860.010 Maint Tool Mgmt- AO&ESDIS Rvw
SVACT5A046 B080860.010 Maint Tool Mgmt- Update Final
SVACT5A048 B080860.010 Maint Tool Mgmt- Dry Run
SVACTE1340 B080860.010 Maint Tool Mgmt (1954&1956)
SVACT5A111 SM14 Ticket Available for B090120.010$L
SVACT5A121 SM15 Ticket Available B090120.010$L
SVACT5A106 B090120.010$L L0 SAGE @LaRC- Dev Draft
SVACT5A108 B090120.010$L L0 SAGE @LaRC- AO&ESDIS Rvw
SVACT5A110 B090120.010$L L0 SAGE @LaRC- Update Final
5A TS2 Install 11FEB99A
25FEB99A 5A Install - TS1
26MAR99A Drop 5A Verification in the VAT
26MAR99A Develop 5A Draft Test Procedures
05APR99A AO & ESDIS Review of 5A Test Procedures
12MAY99 Update Final 5A Test Procedures
18MAY99 Dry Run 5A Test Procedures
Formal VATC Testing of 5A Test Procedures 18MAY99
18MAY99 Install & C/O 5A Beta in TS1
25MAY99 5A VATC Functional Testing in TS1
22JUN99 5A VATC Test Rework in TS1
5A VATC TS1 Testing COMPLETE
11MAY99 Install & C/O 5A Beta in TS2
18MAY99 VATC 5A Functional Testing in TS2
29JUN99 5A VATC Test Rework in TS2
VATC 5A Functional Testing in TS2 COMPLETE
18MAR99A RM03 & RM04 Tickets Available for B080130.030
30MAR99A RH87 Ticket Available for B080130.030
30MAR99A B080130.030 Mode Mgmt & Remedy - Dev Draft
16APR99A B080130.030 Mode Mgmt & Remedy - AO&ESDIS Review
18MAY99 B080130.030 Mode Mgmt & Remedy - Update Final
25MAY99 B080130.030 Mode Mgmt & Remedy - Dry Run
B080130.030 Mode Mgmt & Remedy (3790,3881&3913) 10JUN99
23MAR99A RH60 Ticket Available B080730.010
24MAR99A RM04 & RM19 Tickets Avail for B080730.010
26MAR99A B080730.010 Database Admin - Dev Draft
27APR99A B080730.010 Database Admin - AO&ESDIS Review
01JUN99* B080730.010 Database Admin - Update Final
03JUN99 B080730.010 Database Admin - Dry Run
08JUN99 B080730.010 Database Admin (3480,3485&3486)
23MAR99A RH60 Ticket Available for B080860.010
12APR99A RH12 Ticket Available for B080860.010
15APR99A B080860.010 Maint Tool Mgmt- Dev Draft
27APR99A B080860.010 Maint Tool Mgmt- AO&ESDIS Rvw
19MAY99 B080860.010 Maint Tool Mgmt- Update Final
25MAY99 B080860.010 Maint Tool Mgmt- Dry Run
28MAY99 B080860.010 Maint Tool Mgmt (1954&1956)
24MAR99A SM14 Ticket Available for B090120.010$L
30MAR99A SM15 Ticket Available B090120.010$L
31MAR99A B090120.010$L L0 SAGE @LaRC- Dev Draft
15APR99A B090120.010$L L0 SAGE @LaRC- AO&ESDIS Rvw
18MAY99 B090120.010$L L0 SAGE @LaRC- Update Final
Project Start 01SEP97
Project Finish 28SEP01
Data Date 07MAY99
Run Date 11MAY99
Early Bar
Progress Bar
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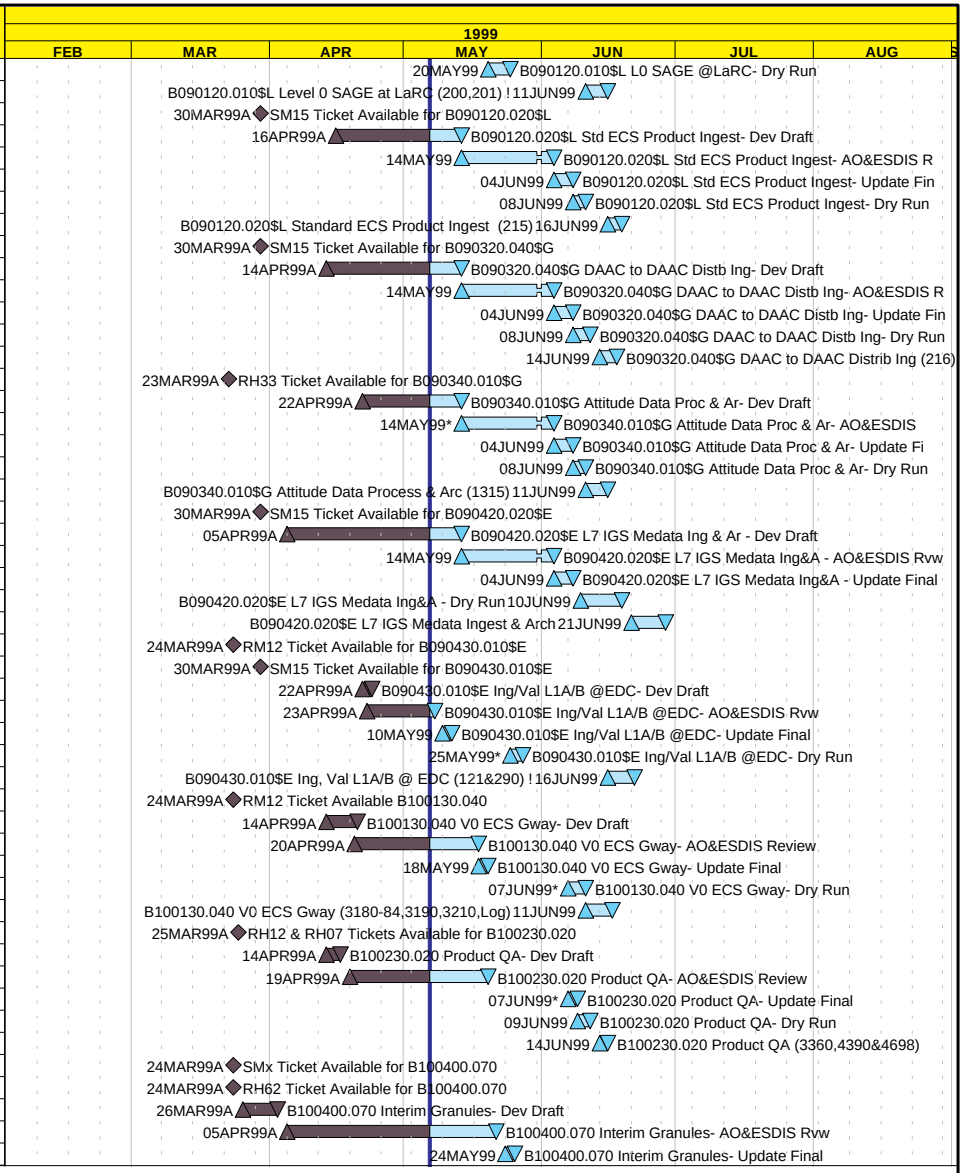
ECSP:SVER
Sheet 1 of 5
ECS Development Project
5A Test Schedule

Activity ID	Activity Description
SVACT5A112	**B090120.010$L L0 SAGE @LaRC- Dry Run**
SVACTE1040	**B090120.010$L Level 0 SAGE at LaRC (200,201) !**
SVACTE3085	**SM15 Ticket Available for B090120.020$L**
SVACT5A066	**B090120.020$L Std ECS Product Ingest- Dev Draft**
SVACT5A068	**B090120.020$L Std ECS Product Ingest- AO&ESDIS R**
SVACT5A070	**B090120.020$L Std ECS Product Ingest- Update Fin**
SVACT5A072	**B090120.020$L Std ECS Product Ingest- Dry Run**
SVACTE1495	**B090120.020$L Standard ECS Product Ingest (215)**
SVACTE3087	**SM15 Ticket Available for B090320.040$G**
SVACT5074	**B090320.040$G DAAC to DAAC Distb Ing- Dev Draft**
SVACT5076	**B090320.040$G DAAC to DAAC Distb Ing- AO&ESDIS R**
SVACT5078	**B090320.040$G DAAC to DAAC Distb Ing- Update Fin**
SVACT5080	**B090320.040$G DAAC to DAAC Distb Ing- Dry Run**
SVACTE1505	**B090320.040$G DAAC to DAAC Distrib Ing (216)**
SVACTE3151	**RH33 Ticket Available for B090340.010$G**
SVACT5A090	**B090340.010$G Attitude Data Proc & Ar- Dev Draft**
SVACT5A092	**B090340.010$G Attitude Data Proc & Ar- AO&ESDIS**
SVACT5A094	**B090340.010$G Attitude Data Proc & Ar- Update Fi**
SVACT5A096	**B090340.010$G Attitude Data Proc & Ar- Dry Run**
SVACTE1525	**B090340.010$G Attitude Data Process & Arc (1315)**
SVACTE3238	**SM15 Ticket Available for B090420.020$E**
SVACT5A002	**B090420.020$E L7 IGS Medata Ing & Ar - Dev Draft**
SVACT5A004	**B090420.020$E L7 IGS Medata Ing&A - AO&ESDIS Rvw**
SVACT5A006	**B090420.020$E L7 IGS Medata Ing&A - Update Final**
SVACT5A008	**B090420.020$E L7 IGS Medata Ing&A - Dry Run**
SVACTE1470	**B090420.020$E L7 IGS Medata Ingest & Arch**
SVACTE3329	**RM12 Ticket Available for B090430.010$E**
SVACTE1540	**SM15 Ticket Available for B090430.010$E**
SVACT5A122	**B090430.010$E Ing/Val L1A/B @EDC- Dev Draft**
SVACT5A124	**B090430.010$E Ing/Val L1A/B @EDC- AO&ESDIS Rvw**
SVACT5A126	**B090430.010$E Ing/Val L1A/B @EDC- Update Final**
SVACT5A128	**B090430.010$E Ing/Val L1A/B @EDC- Dry Run**
SVACTE1000	**B090430.010$E Ing, Val L1A/B @ EDC (121&290) !**
SVACTE1365	**RM12 Ticket Available B100130.040**
SVACT5A010	**B100130.040 V0 ECS Gway- Dev Draft**
SVACT5A012	**B100130.040 V0 ECS Gway- AO&ESDIS Review**
SVACT5A014	**B100130.040 V0 ECS Gway- Update Final**
SVACT5A016	**B100130.040 V0 ECS Gway- Dry Run**
SVACTE1545	**B100130.040 V0 ECS Gway (3180-84,3190,3210,Log)**
SVACTE1550	**RH12 & RH07 Tickets Available for B100230.020**
SVACT5A018	**B100230.020 Product QA- Dev Draft**
SVACT5A020	**B100230.020 Product QA- AO&ESDIS Review**
SVACT5A022	**B100230.020 Product QA- Update Final**
SVACT5A024	**B100230.020 Product QA- Dry Run**
SVACTE1555	**B100230.020 Product QA (3360,4390&4698)**
SVACTE1560	**SMx Ticket Available for B100400.070**
SVACTE1570	**RH62 Ticket Available for B100400.070**
SVACT5A026	**B100400.070 Interim Granules- Dev Draft**
SVACT5A028	**B100400.070 Interim Granules- AO&ESDIS Rvw**
SVACT5A030	**B100400.070 Interim Granules- Update Final**



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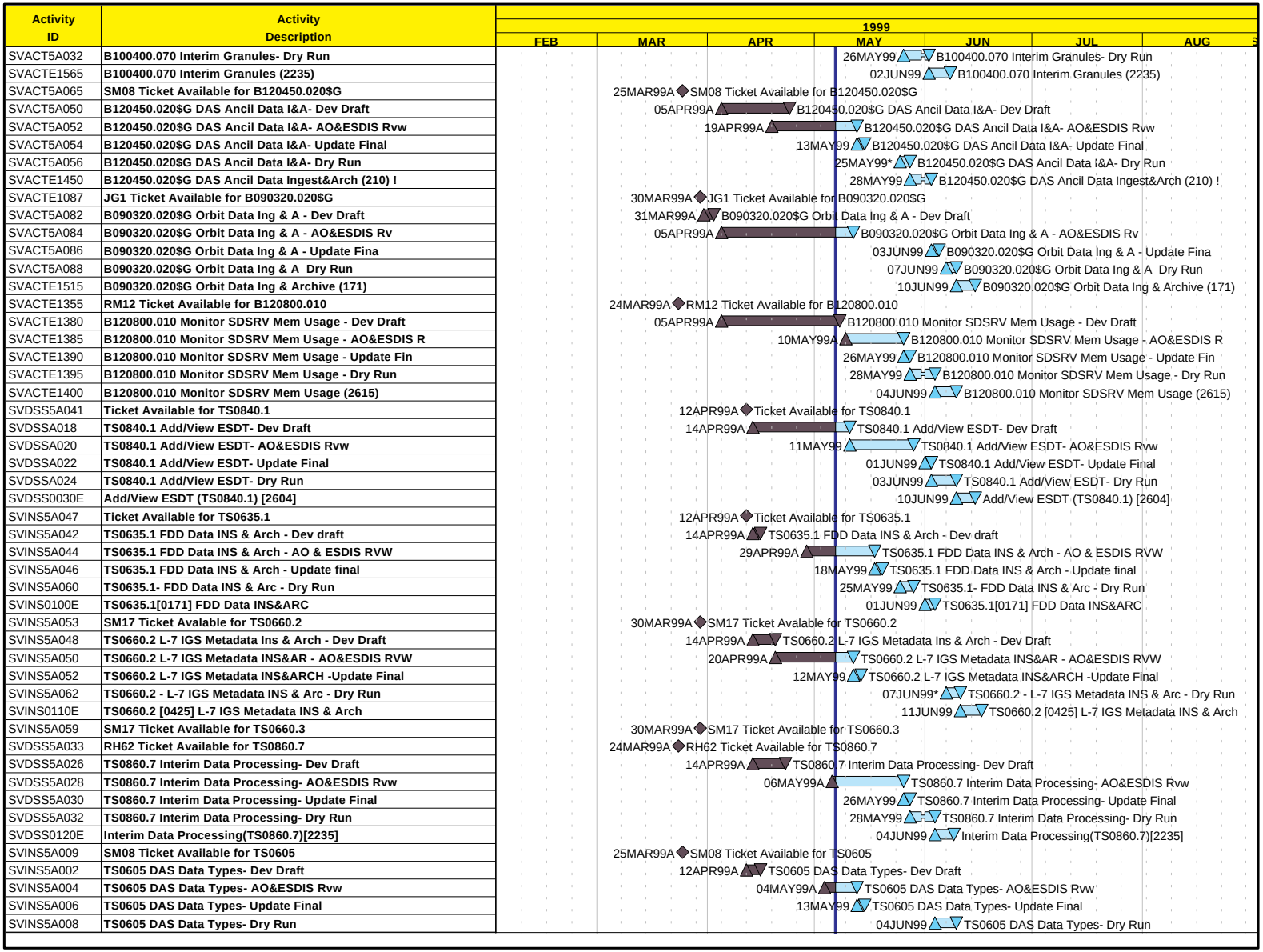
Activity ID
Activity Description
1999
FEB
MAR
APR
MAY
JUN
JUL
AUG
SVACT5A032 B100400.070 Interim Granules- Dry Run
26MAY99 B100400.070 Interim Granules- Dry Run
SVACTE1565 B100400.070 Interim Granules (2235)
02JUN99 B100400.070 Interim Granules (2235)
SVACT5A065 SM08 Ticket Available for B120450.020$G
25MAR99A SM08 Ticket Available for B120450.020$G
SVACT5A050 B120450.020$G DAS Ancil Data I&A- Dev Draft
05APR99A B120450.020$G DAS Ancil Data I&A- Dev Draft
SVACT5A052 B120450.020$G DAS Ancil Data I&A- AO&ESDIS Rvw
19APR99A B120450.020$G DAS Ancil Data I&A- AO&ESDIS Rvw
SVACT5A054 B120450.020$G DAS Ancil Data I&A- Update Final
13MAY99 B120450.020$G DAS Ancil Data I&A- Update Final
SVACT5A056 B120450.020$G DAS Ancil Data I&A- Dry Run
25MAY99* B120450.020$G DAS Ancil Data I&A- Dry Run
SVACTE1450 B120450.020$G DAS Ancil Data Ingest&Arch (210) !
28MAY99 B120450.020$G DAS Ancil Data Ingest&Arch (210) !
SVACTE1087 JG1 Ticket Available for B090320.020$G
30MAR99A JG1 Ticket Available for B090320.020$G
SVACT5A082 B090320.020$G Orbit Data Ing & A - Dev Draft
31MAR99A B090320.020$G Orbit Data Ing & A - Dev Draft
SVACT5A084 B090320.020$G Orbit Data Ing & A - AO&ESDIS Rv
05APR99A B090320.020$G Orbit Data Ing & A - AO&ESDIS Rv
SVACT5A086 B090320.020$G Orbit Data Ing & A - Update Fina
03JUN99 B090320.020$G Orbit Data Ing & A - Update Fina
SVACT5A088 B090320.020$G Orbit Data Ing & A Dry Run
07JUN99 B090320.020$G Orbit Data Ing & A Dry Run
SVACTE1515 B090320.020$G Orbit Data Ing & Archive (171)
10JUN99 B090320.020$G Orbit Data Ing & Archive (171)
SVACTE1355 RM12 Ticket Available for B120800.010
24MAR99A RM12 Ticket Available for B120800.010
SVACTE1380 B120800.010 Monitor SDSRV Mem Usage - Dev Draft
05APR99A B120800.010 Monitor SDSRV Mem Usage - Dev Draft
SVACTE1385 B120800.010 Monitor SDSRV Mem Usage - AO&ESDIS R
10MAY99A B120800.010 Monitor SDSRV Mem Usage - AO&ESDIS R
SVACTE1390 B120800.010 Monitor SDSRV Mem Usage - Update Fin
26MAY99 B120800.010 Monitor SDSRV Mem Usage - Update Fin
SVACTE1395 B120800.010 Monitor SDSRV Mem Usage - Dry Run
28MAY99 B120800.010 Monitor SDSRV Mem Usage - Dry Run
SVACTE1400 B120800.010 Monitor SDSRV Mem Usage (2615)
04JUN99 B120800.010 Monitor SDSRV Mem Usage (2615)
SVDSS5A041 Ticket Available for TS0840.1
12APR99A Ticket Available for TS0840.1
SVDSSA018 TS0840.1 Add/View ESDT- Dev Draft
14APR99A TS0840.1 Add/View ESDT- Dev Draft
SVDSSA020 TS0840.1 Add/View ESDT- AO&ESDIS Rvw
11MAY99 TS0840.1 Add/View ESDT- AO&ESDIS Rvw
SVDSSA022 TS0840.1 Add/View ESDT- Update Final
01JUN99 TS0840.1 Add/View ESDT- Update Final
SVDSSA024 TS0840.1 Add/View ESDT- Dry Run
03JUN99 TS0840.1 Add/View ESDT- Dry Run
SVDSS0030E Add/View ESDT (TS0840.1) [2604]
10JUN99 Add/View ESDT (TS0840.1) [2604]
SVINS5A047 Ticket Available for TS0635.1
12APR99A Ticket Available for TS0635.1
SVINS5A042 TS0635.1 FDD Data INS & Arch - Dev draft
14APR99A TS0635.1 FDD Data INS & Arch - Dev draft
SVINS5A044 TS0635.1 FDD Data INS & Arch - AO & ESDIS RVW
29APR99A TS0635.1 FDD Data INS & Arch - AO & ESDIS RVW
SVINS5A046 TS0635.1 FDD Data INS & Arch - Update final
18MAY99 TS0635.1 FDD Data INS & Arch - Update final
SVINS5A060 TS0635.1- FDD Data INS & Arc - Dry Run
25MAY99 TS0635.1- FDD Data INS & Arc - Dry Run
SVINS0100E TS0635.1[0171] FDD Data INS&ARC
01JUN99 TS0635.1[0171] FDD Data INS&ARC
SVINS5A053 SM17 Ticket Avalable for TS0660.2
30MAR99A SM17 Ticket Avalable for TS0660.2
SVINS5A048 TS0660.2 L-7 IGS Metadata Ins & Arch - Dev Draft
14APR99A TS0660.2 L-7 IGS Metadata Ins & Arch - Dev Draft
SVINS5A050 TS0660.2 L-7 IGS Metadata INS&AR - AO&ESDIS RVW
20APR99A TS0660.2 L-7 IGS Metadata INS&AR - AO&ESDIS RVW
SVINS5A052 TS0660.2 L-7 IGS Metadata INS&ARCH -Update Final
12MAY99 TS0660.2 L-7 IGS Metadata INS&ARCH -Update Final
SVINS5A062 TS0660.2 - L-7 IGS Metadata INS & Arc - Dry Run
07JUN99* TS0660.2 - L-7 IGS Metadata INS & Arc - Dry Run
SVINS0110E TS0660.2 [0425] L-7 IGS Metadata INS & Arch
11JUN99 TS0660.2 [0425] L-7 IGS Metadata INS & Arch
SVINS5A059 SM17 Ticket Available for TS0660.3
30MAR99A SM17 Ticket Available for TS0660.3
SVDSS5A033 RH62 Ticket Available for TS0860.7
24MAR99A RH62 Ticket Available for TS0860.7
SVDSS5A026 TS0860.7 Interim Data Processing- Dev Draft
14APR99A TS0860.7 Interim Data Processing- Dev Draft
SVDSS5A028 TS0860.7 Interim Data Processing- AO&ESDIS Rvw
06MAY99A TS0860.7 Interim Data Processing- AO&ESDIS Rvw
SVDSS5A030 TS0860.7 Interim Data Processing- Update Final
26MAY99 TS0860.7 Interim Data Processing- Update Final
SVDSS5A032 TS0860.7 Interim Data Processing- Dry Run
28MAY99 TS0860.7 Interim Data Processing- Dry Run
SVDSS0120E Interim Data Processing(TS0860.7)[2235]
04JUN99 Interim Data Processing(TS0860.7)[2235]
SVINS5A009 SM08 Ticket Available for TS0605
25MAR99A SM08 Ticket Available for TS0605
SVINS5A002 TS0605 DAS Data Types- Dev Draft
12APR99A TS0605 DAS Data Types- Dev Draft
SVINS5A004 TS0605 DAS Data Types- AO&ESDIS Rvw
04MAY99A TS0605 DAS Data Types- AO&ESDIS Rvw
SVINS5A006 TS0605 DAS Data Types- Update Final
13MAY99 TS0605 DAS Data Types- Update Final
SVINS5A008 TS0605 DAS Data Types- Dry Run
04JUN99 TS0605 DAS Data Types- Dry Run

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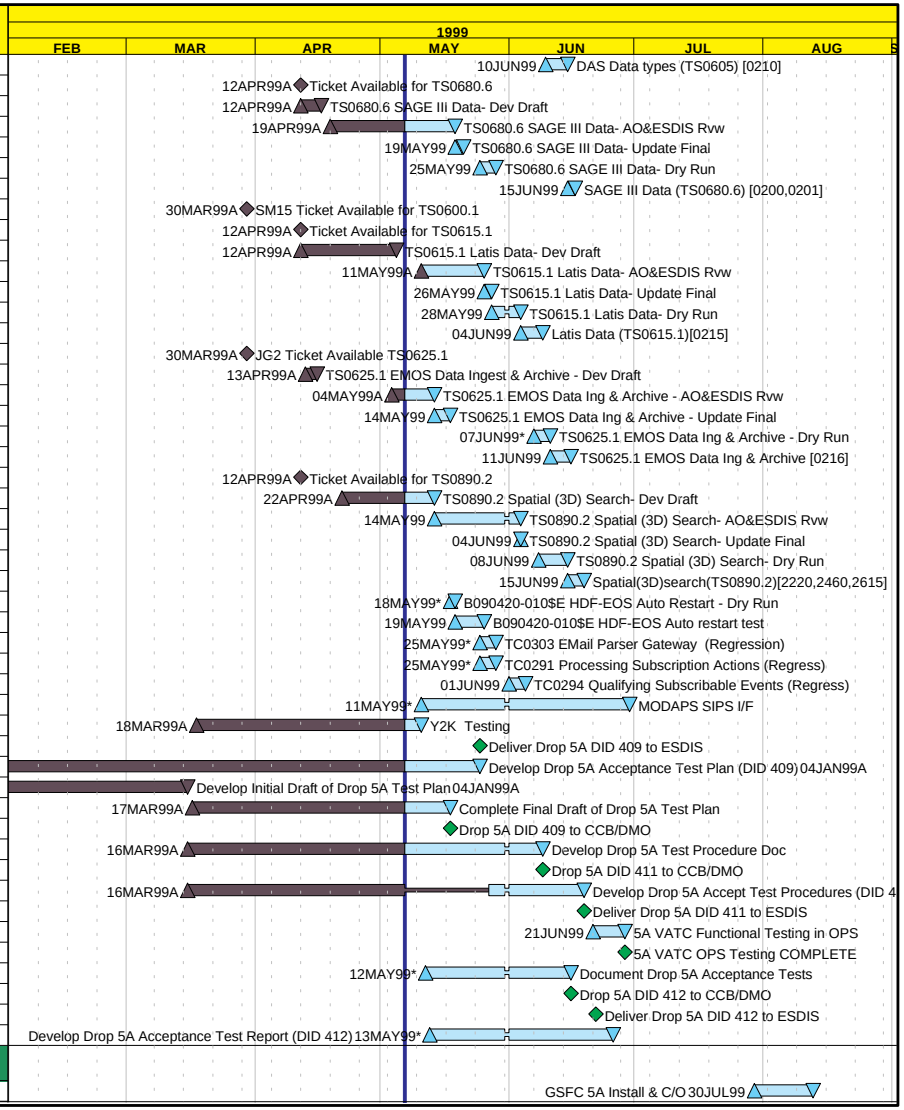
Activity ID	Activity Description
SVINS0010E	**DAS Data types (TS0605) [0210]**
SVINS5A017	**Ticket Available for TS0680.6**
SVINS5A010	**TS0680.6 SAGE III Data- Dev Draft**
SVINS5A012	**TS0680.6 SAGE III Data- AO&ESDIS Rvw**
SVINS5A014	**TS0680.6 SAGE III Data- Update Final**
SVINS5A016	**TS0680.6 SAGE III Data- Dry Run**
SVINS0050E	**SAGE III Data (TS0680.6) [0200,0201]**
SVINS5A025	**SM15 Ticket Available for TS0600.1**
SVINS5A033	**Ticket Available for TS0615.1**
SVINS5A026	**TS0615.1 Latis Data- Dev Draft**
SVINS5A028	**TS0615.1 Latis Data- AO&ESDIS Rvw**
SVINS5A030	**TS0615.1 Latis Data- Update Final**
SVINS5A032	**TS0615.1 Latis Data- Dry Run**
SVINS0080E	**Latis Data (TS0615.1)[0215]**
SVINS5A041	**JG2 Ticket Available TS0625.1**
SVINS5A034	**TS0625.1 EMOS Data Ingest & Archive - Dev Draft**
SVINS5A036	**TS0625.1 EMOS Data Ing & Archive - AO&ESDIS Rvw**
SVINS5A038	**TS0625.1 EMOS Data Ing & Archive - Update Final**
SVINS5A040	**TS0625.1 EMOS Data Ing & Archive - Dry Run**
SVINS0090E	**TS0625.1 EMOS Data Ing & Archive [0216]**
SVDSS5A017	**Ticket Available for TS0890.2**
SVDSS5A010	**TS0890.2 Spatial (3D) Search- Dev Draft**
SVDSS5A012	**TS0890.2 Spatial (3D) Search- AO&ESDIS Rvw**
SVDSS5A014	**TS0890.2 Spatial (3D) Search- Update Final**
SVDSS5A016	**TS0890.2 Spatial (3D) Search- Dry Run**
SVDSS0020E	**Spatial(3D)search(TS0890.2)[2220,2460,2615]**
SVACT5A130	**B090420-010$E HDF-EOS Auto Restart - Dry Run**
SVACT5A135	**B090420-010$E HDF-EOS Auto restart test**
SVIDGE907	**TC0303 EMail Parser Gateway (Regression)**
SVIDGE908	**TC0291 Processing Subscription Actions (Regress)**
SVIDGE909	**TC0294 Qualifying Subscribable Events (Regress)**
SVEIT20000	**MODAPS SIPS I/F**
SVMGT5A245	**Y2K Testing**
SVACTE1080	**Deliver Drop 5A DID 409 to ESDIS**
SVACTE1055	**Develop Drop 5A Acceptance Test Plan (DID 409)**
SVACTE1060	**Develop Initial Draft of Drop 5A Test Plan**
SVACTE1065	**Complete Final Draft of Drop 5A Test Plan**
SVACTE1075	**Drop 5A DID 409 to CCB/DMO**
SVACTE1090	**Develop Drop 5A Test Procedure Doc**
SVACTE1095	**Drop 5A DID 411 to CCB/DMO**
SVACTE1085	**Develop Drop 5A Accept Test Procedures (DID 411)**
SVACTE1100	**Deliver Drop 5A DID 411 to ESDIS**
SVMGTE1030	**5A VATC Functional Testing in OPS**
SVMGTE1035	**5A VATC OPS Testing COMPLETE**
SVACTE1115	**Document Drop 5A Acceptance Tests**
SVACTE1120	**Drop 5A DID 412 to CCB/DMO**
SVACTE1125	**Deliver Drop 5A DID 412 to ESDIS**
SVACTE1105	**Develop Drop 5A Acceptance Test Report (DID 412)**
GSFC Goddard Space Flight Center	
SVMGTE1060	**GSFC 5A Install & C/O**



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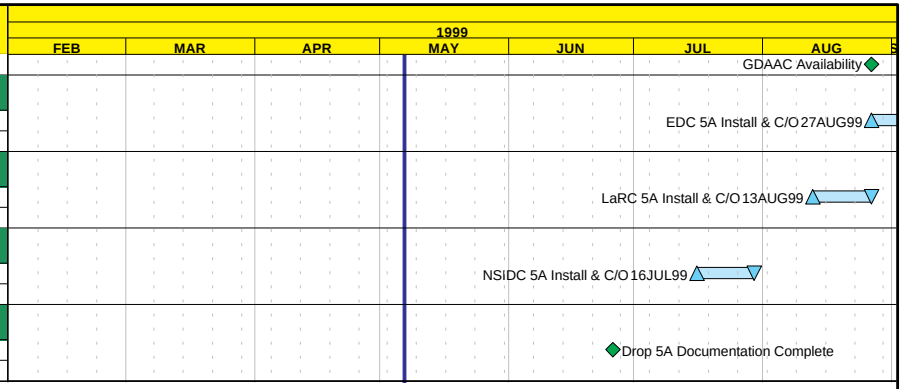
Activity ID	Activity Description
SVMGTE1180	**GDAAC Availability**
EDC EROS Data Center - Sioux Falls	
SVMGTE1070	**EDC 5A Install & C/O**
SVMGTE1190	**EDAAC Availability**
LARC Langley Research Center	
SVMGTE1100	**LaRC 5A Install & C/O**
SVMGTE1200	**LDAAC Availability**
NSID National Snow and Ice Data Center	
SVMGTE1080	**NSIDC 5A Install & C/O**
SVMGTE1110	**NDAAC Availability**
ECS EOSDIS Core System - All Sites	
SVMGTE1133	**Drop 5A Documentation Complete**
SVMGTE1130	**Drop 5A Complete (SV tie off)**



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